PAQUIN

P10 Pressure Transmitter Operating Instructions

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P10 Operating Instructions

PAQUiN SENSORS
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1. The input signal range of this board is ±5~80mv@0.4mA excitation, corresponding to 1.5mA. The diffused silicon sensor signal range of the excitation is±19mv~320mv. Generally, it is recommended that the full span input signal be set at the 85% position for the most appropriate result. Due to the variety of sensor types available in the market, their sensitivities vary.

   Therefore, the amplifier gain on this board can be adjusted through the panel buttons; the adjustable range includes 12, 25, 50, 75, 100, 125, 150, 200, and it can increase or decrease the sensor sensitivity by adjusting. The specific reference standard is to check the value of the AD-H menu when the sensor is in the full-scale state, and generally, the absolute value of this value is reasonable when between 10000~30000. If it is inappropriate, the SN gain value needs to be adjusted. Generally, it is OK to set 25 for the diffused silicon and set 100 for the ceramic. During the calibration, it is more comprehensive to choose and adopt the panel button calibration, which can set all the working parameters inside the transmitter board.

2. This transmitter circuit supports communication with a computer via a single-wire interface. Currently, this interface is only used by major customers and factories as a production calibration interface, and if the user needs to communicate with the transmitter board, please contact us, and we will provide the communication protocol and circuit for this communication interface. For the communication interface, one end is the USB interface, and the other end is the single-line 1W interface. This interface can read and set all the parameters inside the transmitter.

3. The transmitter circuit board is the crucial component for producing the transmitter. However, correct installation and assembly are essential to ensure the performance and anti-interference indexes of the transmitter.

   Inside the transmitter circuit board, the grounding point against the transmitter housing is set; normally it has two screw fixing holes, and good contact with the housing should be ensured.

   It is best to ensure that the housing of the transmitter is properly connected to the real ground.

4. When using and installing the transmitter on-site, it is important to ensure that the wiring does not overlap with the power line and the wiring of the frequency conversion system, because the transmitter system is a weak current system.

   For the cable selection, it is best to choose the cable with the shielding layer, and ensure that the shielding layer has a good large-area contact with the transmitter housing; the power supply wiring of the system requires the single-point grounding. If the anti-interference is particularly strong and the above method cannot be implemented, then a power filter can be installed in the 4-20mA current loop; adding several more levels, the anti-interference effect will be very beneficial. The position of the filter should be as close as possible to the transmitter. The grounding wire of the filter should be as short and thick as possible, so as to ensure a good grounding effect.

5. Inside the circuit board, there is settable multi-level filter coefficient settings; wherein, 0 is no filtering, and 5 is the highest-level filtering; in situations with severe interference, it is necessary to set the filter coefficient value of the transmitter; the larger the filtering coefficient is, the slower the transmitter responds; however, it is not sensitive to some transient disturbances. The smaller the filtering coefficient is, the faster the transmitter responds; this can be set to a reasonable value based on the on-site conditions and control requirements. The filtering coefficients are only applicable to LED displays, and the transmitter output is not affected by the filtering coefficient.

6. The circuit board is designed as a two-layer circuit board assembly. However, the user can choose whether to install the display board; even without the display board, the circuit can still function properly, and this will not affect any performance of the transmitter. The display panel supports hot swapping.

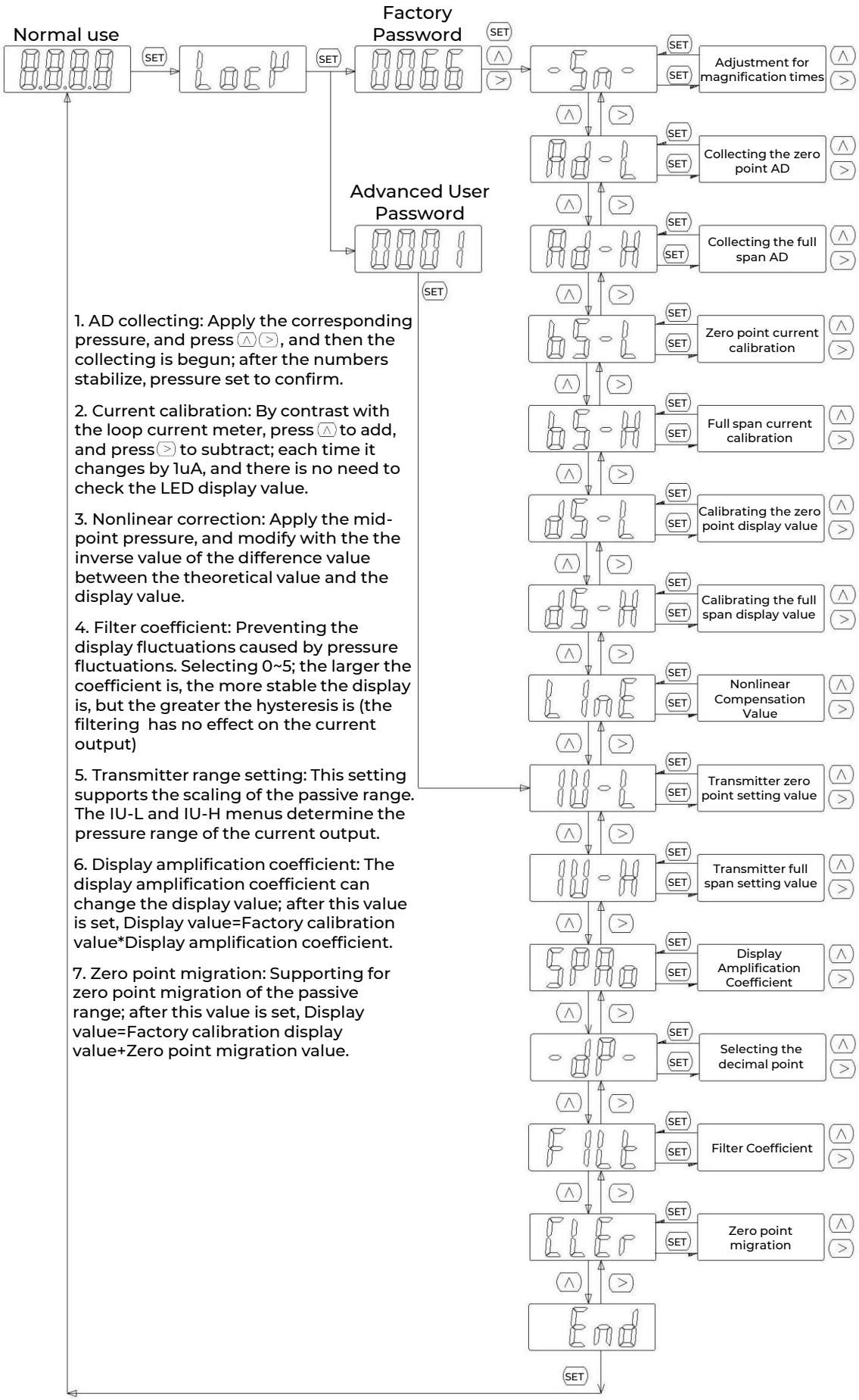
P10 Operating Instructions

7. The working environment of the transmitter is usually quite harsh; therefore, after assembling the entire transmitter, some waterproof and breathable treatment is required; the circuit board needs to be coated with moisture-proof material, and it is best to attach a waterproof breathable film to the entire machine. The interface where the housing needs to be disassembled requires the installation of sealing rubber rings.
8. There are two passwords for the circuit board menu settings. The factory calibration password is 66, and the advanced user password is 1. Generally, users are not allowed to access the factory calibration menu.
9. The complete assembly of the transmitter usually requires shock aging and power-on aging; through these aging measures, the assembly stress of the transmitter and the initial failure rate of the circuit can be eliminated. The product quality will be improved.

Passive Migration and Range Scaling

1. Zero-point migration: To accommodate a wider range of applications, the zero-point migration function has been added; Menu “CLEr” sets this value, and the display after the setting=Original factory calibration value+Zero point offset value.
2. Range scaling: Scaling supports both enlargement and reduction. Generally, it is recommended to calibrate according to the maximum range, and then set the range of the 4-20mA output. For example, for a pressure sensor with the range of 5 MPa, the calibration settings are DS-L = 0.000 and DS-H = 5.000. Under the zero pressure and 5 MPa pressure, AD-L and AD-H are collected respectively, and then the instrument displays the real-time pressure value. At this time, set IU-L to 0 and IU-H to 5.000, and then this transmitter outputs 4mA at the pressure of 0 and outputs 20.000 mA at the pressure of 5.000 MPa. If the setting is IU-L=0, IU-H=2.500, the transmitter outputs 4mA at the pressure of zero and outputs 20.000mA at the pressure of 2.500MPa
3. Display amplification coefficient: Menu SPAN sets the data; the data range is 0.100 - 9.999, and normally it is set as 1.000. Current measurement value=Display value measured actually*SPAN.
4. The combined use of the zero point migration and the amplification coefficient; Current display value=Display value measured actually*SPAN+CLER
5. The zero point reset and the zero point offset are two concepts; wherein, the zero point reset value is not for external display and is the hidden value within the instrument; the zero point offset and the zero point reset will both add or subtract offset values to the measurement value of the transmitter. The zero point reset does not affect the zero point offset.
6. The factory password for the instrument is 0066, and the user password is 0001; as a transmitter, we usually only show the user password to the customers.

P10 Operating Instructions



1. AD collecting: Apply the corresponding pressure, and press ∧ >, and then the collecting is begun; after the numbers stabilize, pressure set to confirm.

2. Current calibration: By contrast with the loop current meter, press ∧ to add, and press > to subtract; each time it changes by 1uA, and there is no need to check the LED display value.

3. Nonlinear correction: Apply the mid-point pressure, and modify with the the inverse value of the difference value between the theoretical value and the display value.

4. Filter coefficient: Preventing the display fluctuations caused by pressure fluctuations. Selecting 0~5; the larger the coefficient is, the more stable the display is, but the greater the hysteresis is (the filtering has no effect on the current output)

5. Transmitter range setting: This setting supports the scaling of the passive range. The IU-L and IU-H menus determine the pressure range of the current output.

6. Display amplification coefficient: The display amplification coefficient can change the display value; after this value is set, Display value=Factory calibration value*Display amplification coefficient.

7. Zero point migration: Supporting for zero point migration of the passive range; after this value is set, Display value=Factory calibration display value+Zero point migration value.

Additional Information

Paquin Sensors' product portfolio is designed to provide options to fit the most diverse range of specifications.

We collaborate with our customers to match the best product technologies with your unique application requirements.

Please contact us or call +1 (800) 831-8217 anytime to discuss your needs!